Amendments to the Claims

The listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A method [[of]] for detecting inter-symbol interference (ISI) ~~of a symbol for~~ and accordingly improving ~~adjusting~~ a timing of a detected boundary used for processing a plurality of different symbols, wherein the plurality of different symbols comprise a previous symbol, a current symbol and a following symbol and each of them ~~of the symbol utilized by an OFDM system, wherein each symbol includes~~ is composed of a plurality of signals which are respectively transmitted ~~transmitting~~ via a plurality of sub-carriers in an OFDM system, the method comprising:

computing a first correlation value according to a specific signal of the current symbol and a specific signal of the previous symbol; ~~representing the correlation between a plurality of first signals of a first symbol and a plurality of second signals of a second symbol previous to the first symbol, wherein the first and the second signals are both transmitted via the same sub-carriers;~~

computing a second correlation value according to the specific signal of the current symbol and a specific signal of the following symbol, wherein the specific signals of the previous, current and following symbols are transmitted via the same sub-carrier; ~~representing the correlation between the first signals and a plurality of third signals of a third symbol next to the first symbol, wherein the first and the third signals are both transmitted via the same sub-carriers;~~

comparing the first correlation value with the second correlation value to determine whether the first correlation value is larger than the second correlation value; and

~~adjusting the timing of the boundary according to the comparison result;~~

~~wherein the step of adjusting the timing of the boundary comprises:~~

delaying the timing of the detected boundary when the first correlation value is larger ~~greater~~ than the second correlation value due to the timing of the detected boundary being ahead of the timing of an ideal boundary, [[or]] and advancing the timing of the detected boundary when the second correlation value is larger ~~greater~~ than the first correlation value due to the timing of the detected boundary lagging behind the timing of the ideal boundary.

2. (Currently Amended) The method of claim 1, wherein the specific signals of the previous, current and following symbols are pilot signals ~~signals include a plurality of pilot signals and a plurality of data signals~~.

3-4. (Cancelled)

5. (Currently Amended) The method of claim 1 [[2]], wherein the specific signals of the previous, current and following symbols are data signals ~~first, the second, and the third signals are all data signals~~.

6. (Cancelled)

7. (Currently Amended) The method of claim 1, wherein the step of computing the first correlation value comprises:

computing a plurality of first conjugated values according to the specific signal of the current symbol ~~of the first signals~~;

~~multiplying each of the conjugated first signals by the corresponding one of the second signals for~~ generating a plurality of first product values according to the first conjugated values and the specific signal of the previous symbol; [[and]]

generating a plurality of first calculation values with the same sign according to the first product values; and

generating the first correlation value according to the summation of the first calculation values ~~product value~~.

8. (Currently Amended) The method of claim 7, wherein the first calculation values are absolute values ~~correlation value is generated according to summation of the absolute value of the product value~~.

9. (Currently Amended) The method of claim 7, wherein the first calculation values are square values ~~correlation value is generated according to summation of the square value of the product value~~.

10. (Currently Amended) The method of claim 7 [[1]], wherein the step of computing

the second correlation value comprises:

computing a plurality of second conjugated values according to the specific signal of the current symbol ~~of the first signals~~;

~~multiplying each of the conjugated first signals by the corresponding one of the third signals for~~ generating a plurality of second product values according to the second conjugated values and the specific signal of the following symbol; [[and]]

generating a plurality of second calculation values with the same sign according to the second product values; and

generating the second correlation value according to the summation of the second calculation values ~~product value~~.

11. (Currently Amended) The method of claim 10, wherein the second calculation values are absolute values ~~correlation value is generated according to the summation of the absolute value of the product value~~.

12. (Currently Amended) The method of claim 10, wherein the second calculation values are square values ~~correlation value is generated according to the summation of the square value of the product value~~.

13. (Cancelled)

14. (Currently Amended) An apparatus [[of]] for detecting inter-symbol interference

(ISI) ~~of a symbol for~~ and accordingly improving ~~adjusting~~ a timing of a detected boundary used for processing a plurality of different symbols, wherein the plurality of different symbols comprise a previous symbol, a current symbol and a following symbol and each of them ~~of the symbol utilized by an OFDM system, wherein each symbol includes~~ is composed of a plurality of signals which are respectively ~~transmitting~~ transmitted via a plurality of sub-carriers in an OFDM system, the apparatus comprising:

a first correlator for computing a first correlation value according to a specific signal of the current symbol and a specific signal of the previous symbol;~~representing the correlation between a plurality of first signals of a first symbol and a plurality of second signals of a second symbol previous to the first symbol, wherein the first and the second signals are both transmitted via the same sub-carriers~~

a second correlator for computing a second correlation value according to the specific signal of the current symbol and a specific signal of the following symbol, wherein the specific signals of the previous, current and following symbols are transmitted via the same sub-carrier; ~~representing the correlation between the first signals and a plurality of third symbols of a third symbol next to the first symbol, wherein the first and the third signals are both transmitted via the same sub-carriers~~;

a comparator for comparing the first correlation value with the second correlation value to determine whether the first correlation value is larger than the second correlation value; and

a timing controller for ~~adjusting the timing of the boundary according to the comparison result;~~

~~wherein the timing controller delays~~ delaying the timing of the detected boundary when the first correlation value is ~~greater~~ larger than the second correlation value due to the timing of the detected boundary being ahead of the timing of an ideal boundary, [[or]] and ~~the timing controller advances~~ advancing the timing of the detected boundary when the second correlation value is ~~greater~~ larger than the first correlation value due to the timing of the detected boundary lagging behind the timing of the ideal boundary.

15. (Cancelled)

16. (Currently Amended) The apparatus of claim 14 [[15]], wherein the specific signals of the previous, current and following symbols are pilot signals ~~corresponding pilot signals of the first, the second, and the third symbols are not the same and the first, the second, and the third signals are all pilot signals~~.

17. (Cancelled)

18. (Currently Amended) The apparatus of claim 14 [[15]], wherein the specific signals of the previous, current and following symbols are data signals ~~first, the second, and the third signals are all data signals~~.

19. (Cancelled)

20. (Currently Amended) The apparatus of claim 14, wherein the first correlator further comprises:

a first conjugating circuit [[unit]] for computing a plurality of first conjugated values according to the specific signal of the current symbol ~~of the first data~~;

a multiplying circuit [[unit]] for ~~multiplying the conjugated first data by the second data for~~ generating a plurality of first product values according to the first conjugated values and the specific signal of the previous symbol;

[[and]]

a first calculating circuit for generating a plurality of first calculation values with the same sign according to the first product values; and

a first summation circuit for generating the first correlation value according to the first calculation values.

~~a correlation value computer for generating the first correlation value according to the product value.~~

21. (Currently Amended) The apparatus of claim 20, wherein the first calculation values are absolute values. ~~correlation value computer further comprises:~~

~~a absolute value calculating unit for calculating the absolute value of each of the product values; and~~

~~a summation unit for calculating the sum of the absolute value of the product values.~~

22. (Currently Amended) The apparatus of claim 20, wherein the first calculation values are square values. ~~correlation value computer further comprises:~~

~~a square value calculating unit for calculating the square value of each of the product values; and~~

~~a summation unit for calculating the sum of the square value of the product values.~~

23. (Currently Amended) The apparatus of claim 20 [[14]], wherein the second correlator further comprises:

a conjugating circuit [[unit]] for computing a plurality of second conjugated values according to the specific signal of the current symbol ~~of the first data~~;

a multiplying circuit [[unit]] for ~~multiplying the conjugated first data by the third data for~~ generating a plurality of second product values according to the second conjugated values and the specific signal of the following symbol; [[and]]

a second calculating circuit for generating a plurality of second calculation values with the same sign according to the second product values; and

a second summation circuit for generating the second correlation value according to the second calculation values.

~~a correlation value computer for generating the second correlation value according to the product value.~~

24. (Currently Amended) The apparatus of claim 23, wherein the second calculation values are absolute values. ~~correlation value computer further comprises:~~

~~a absolute value calculating unit for calculating the absolute value of each of the product values; and~~

~~a summation unit for calculating the sum of the absolute value of the product values.~~

25. (Currently Amended) The apparatus of claim 23, wherein the second correlation values are square values. ~~correlation value computer further comprises:~~

~~a square value calculating unit for calculating the square value of each of the product values; and~~

~~a summation unit for calculating the sum of the square value of the product values.~~

26. (Currently Amended) The apparatus of claim 14, wherein the apparatus further comprises:

a first equalizing circuit ~~equalizer~~ for equalizing the specific signal of the previous ~~second~~ symbol;

a first slicing circuit ~~slicer coupled to the first correlator~~ for slicing the equalized specific signal of the previous ~~second~~ symbol and providing a first sliced signal for the first correlator ~~generating the second signal~~;

a second equalizing circuit ~~equalizer~~ for equalizing the specific signal of the following [[third]] symbol; and

a second slicing circuit ~~slicer coupled to the second correlator~~ for slicing the

equalized specific signal of the following [[third]] symbol and ~~generating the third signal~~ providing a second sliced signal for the second correlator;

wherein the first correlator computes the first correlation value according to the first sliced signal and the specific signal of the current symbol, and the second correlator computes the second correlation value according to the second sliced signal and the specific signal of the current symbol.

27-28. (Cancelled)